ABSTRACT

In a heat processing system for a fuel cell comprising a catalytic combustor 23 that has supplied and combusts an anode off gas and a cathode off gas discharged from a fuel cell stack 21, a vaporizer 24 that has introduced therein a combustion gas produced in the catalytic combustor 23, heats a raw fuel for a fuel cell by using the heat of the combustion gas to make it a fuel vapor, an off gas heater that heats the anode off gas and the cathode off gas by a combustion gas used in the vaporizer 24, a reformer 25 that reforms the fuel vapor produced by the vaporizer 24 and provides the fuel gas to the fuel cell stack 21, wherein the combustion gas temperature of the catalytic combustor 23 is set based on the required fuel vapor temperature, the flow volume of the cathode off gas is set and adjusted depending on this combustion gas temperature, and the set combustion gas temperature is compensated based on the required fuel vapor temperature and the actual fuel vapor temperature.